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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,551	08/20/2001	Marcus J. laGrone	5671.026	6753
30589	7590	10/09/2003	EXAMINER	
DUNLAP, CODDING & ROGERS P.C.			CONNOLLY, PATRICK J	
PO BOX 16370			ART UNIT	
OKLAHOMA CITY, OK 73113			PAPER NUMBER	

2877

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/933,551	Applicant(s) LAGRONE, MARCUS J.	
	Examiner Patrick J Connolly	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 13 August 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings were received on August 13, 2003. These drawings are acceptable.

Information Disclosure Statement

The information disclosure statement filed December 31, 2001 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 as it contains no references. Further, the statement contained within the information disclosure statement appears to be copied from the "Background of the Invention" section of the specification.

It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Response to Arguments

Applicant's arguments filed August 13, 2003 have been fully considered but they are not persuasive.

As shown in the admitted prior art, various configurations of a number of mirrors resulting in beam delays are notoriously well known in the art. Further, the placement of these delays within any number of points within a given interferometer is also well known in the art. This placement of a mirror-delay configuration in a beam path has the well-known effect of increasing the optical beam path, for example in of one arm of an interferometer.

Further, interferometers involving a tilting component are well known in the art; see for example the interferometer of Hall et al.

As to the Applicant's arguments regarding claims 1 and 2, it would be obvious to one of ordinary skill in the art at the time of invention to extend one arm of the interferometer of Hall et al with an optical delay consisting of a number of mirrors. Further, it would be obvious to arrange these mirrors such that the beam path might be out of the plane formed by the other beams in the interferometer.

As to the Applicant's arguments regarding claim 3, a planar scanning mirror and a carriage with two corner cube reflectors are well known substitutions, such that it would be obvious to substitute the appropriately configured carriage with a scanning planar mirror, as they serve very similar functions within the interferometer of Hall et al. While the planar mirror might offer advantages including reduced weight and size as well as increased speed, the mirror is still obviously substitutable as its optical functions are very similar to the corner cube reflector carriage combination.

With further regard to the applicant's arguments pertaining to claim 3, please see the above discussion of claims 1 and 2.

As to the Applicant's arguments regarding claims 4, 5, 7, 8, 10, 11, 13 and 14, it is obvious that an optical delay can be placed in either the reference or measurement arm of an interferometer and have the same effect of extending the optical beam path. See the discussion of the arguments regarding claims 1 and 2 above.

As to the Applicant's arguments regarding claim 9 (and claim 12), a Genzel-Michelson arrangement is simply another well-known configuration of mirrors that would result in the same effects of the above discussed optical delays.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,165,183 to Hall et al. (hereafter Hall).

As to claims 1 and 2, the applicant's admitted prior art of Figures 2b and 3b teach a delay element in an interferometer, the delay element consisting of four mirrors that delay the beam path within the plane of the rest of the interferometer beams. Both the plane of the beam and number of mirrors used to execute the beam delay are arbitrary, as they do not exhibit particular properties in any particular configuration. It would have been obvious to one of ordinary skill in the art at the time of invention to choose any path configuration. Further it would be obvious to include such a delay element in the apparatus of Hall, for example in place of mirror 220 in Figure 6).

As to claim 3, Hall teaches an interferometer including (see Figure 6) a beam splitter (10) and steering mirrors (12,14,220). While Hall does not teach a scanning mirror with opposing planar faces, he does teach a carriage with two corner cube reflectors (16,18,20). It would have been obvious to one of ordinary skill in the art at the time of invention to substitute a planar

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scanning mirror for the carriage assembly of Hall, as they are well known substitutions. Further it would be obvious to include such a delay element in the apparatus of Hall, for example in place of mirror 220 in Figure 6), for the reasons stated above.

As to claims 4, 5, 7, 8, 10, 11, 13 and 14, the placement of a delay element is arbitrary and it would be obvious to one of ordinary skill in the art to place such a delay at any point within an interferometer configuration for the reasons as stated above.

As to claim 6, Hall teaches a Genzel arrangement interferometer (see Figure 1).

As to claim 12, Hall teaches a Genzel Mach Zehnder arrangement interferometer (see Figure 6).

As to claim 9, while Hall does not teach a Genzel Michelson interferometer arrangement specifically, such interferometric arrangements are notoriously well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to include such an arrangement in the apparatus of Hall.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 703.305.4397. The examiner can normally be reached on 9 am-5.30 pm ... Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703.308.4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703.746.7722 for regular communications and 703.746.7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0956.

pjc/rl
September 30, 2003



Samuel A. Turner
Primary Examiner